

WHAT IS CLAIMED IS:

1. A color image reading apparatus comprising:
light-receiving means formed by setting a plurality of line sensors on a single substrate;
5 imaging means for imaging an object;
color-separation means, inserted in an optical path between said imaging means and light-receiving means, for color-separating a light beam coming from the object into a plurality of color light beams; and
10 first cylinder means, inserted in an optical path between the object and said imaging means, for temporarily imaging the object in a sub-scanning direction in an optical path before said imaging means.
- 15 2. An apparatus according to claim 1, further comprising:
line spacing correction means for correcting deviations of imaging positions on a surface of said light-receiving means caused by different wavelengths
20 of the color light beams color-separated by said color-separation means; and
second cylinder means having a power in the sub-scanning direction.
- 25 3. An apparatus according to claim 2, wherein said color-separation means, said line spacing correction means, and said second cylinder means

inserted in the optical path between said imaging means and said light-receiving means are placed in an order of said color-separation means, said line spacing correction means, and said second cylinder means from the side of said imaging means.

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4. An apparatus according to claim 2, wherein said color-separation means, said line spacing correction means, and said second cylinder means inserted in the optical path between said imaging means and said light-receiving means are placed in an order of said second cylinder means, said color-separation means, and said line spacing correction means from the side of said imaging means.

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5. An apparatus according to claim 2, wherein said line spacing correction means comprises a plane-parallel glass, said color-separation means comprises a transmission linear blazed diffraction grating, and said plane-parallel glass and said transmission linear blazed diffraction grating are integrated and are placed to have a tilt with respect to an optical axis of said imaging means.

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6. An apparatus according to claim 2, wherein said line spacing correction means sets spacings between adjacent ones of the plurality of color light

beams color-separated in the sub-scanning direction on
the surface of said light-receiving means to be equal
to each other by changing optical paths of the color
light beams using different refractive indices
5 depending on different wavelengths.

7. An apparatus according to claim 2, wherein a
slit is placed at or near a position where said first
cylinder means temporarily images.

10 8. An apparatus according to claim 2, wherein
said first cylinder means comprises a cylindrical lens
having a power in the sub-scanning direction.

15 9. An apparatus according to claim 2, wherein
said second cylinder means comprises a first
cylindrical lens having a negative power in the
sub-scanning direction, and a second cylindrical lens
having a positive power in the sub-scanning direction.

20 10. An apparatus according to claim 1, wherein
said color-separation means color-separates an incoming
light beam into three color light beams in a direction
perpendicular to a line-up direction of pixels of said
25 line sensors.

11. An apparatus according to claim 1, further

comprising first, second, and third mirrors inserted in
the optical path between the object and said imaging
means, and

wherein said first cylinder means comprises at
least two cylindrical lenses, and a slit is placed at
or near a position where the cylindrical lens placed on
the object side temporarily images the object.

12. An apparatus according to claim 11, wherein
10 the cylindrical lens placed on the object side has a
positive refractive power, and is placed near the
object.

13. An apparatus according to claim 11, wherein
15 the cylindrical lens placed on the object side has a
positive refractive power, and is inserted between said
first and second mirrors.

14. An apparatus according to claim 13, wherein
20 said slit and second mirror are integrated.

15. An apparatus according to claim 11, wherein
the cylindrical lenses placed on the side of said
imaging means has a positive refractive power, and is
25 placed in the vicinity of said imaging means.

16. An apparatus according to claim 11, wherein

said second and third mirrors construct an inverted-V-shaped mirror unit.

5 17. An apparatus according to claim 11, wherein
said color-separation means comprises a transmission or
reflection diffraction grating.

10 18. An apparatus according to claim 11, wherein
said color-separation means comprises a dichroic prism
10 or dichroic mirror.